

# Public Health, Birds, and Bird Flu

## Bird Flu: A Likely Zoonotic Disease?

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# Definitions

- Pandemic
  - When?/If? H5N1 undergoes antigenic shift to readily transmit human-human
- Zoonotic Disease
  - Any disease that is spread between animals and people

# Zoonotic Disease Examples

- Rabies
- Toxoplasmosis
- Salmonellosis
- E. coli O157:H7  
(hemorrhagic colitis)
- Psittacosis  
(Chlamydophila psittaci)

# Influenza Virus

- Family Orthomyxoviridae
- Three main types
  - Type A
    - Multiple species, including humans
  - Type B
    - Humans
  - Type C
    - Humans and swine

# Influenza Type A

- Includes Avian Influenza
- Classification by surface antigens
  - Hemagglutinin (H or HA)
  - Neuraminidase (N or NA)
- Classification per ability to cause disease IN BIRDS
  - Low pathogenic
  - Highly pathogenic “HPAI”

# Avian Influenza in Birds

- **Highly Pathogenic Avian Influenza (HPAI)**
  - Cause high mortality in domestic poultry
    - Economic impact on agriculture (in US 1924, 1983, 2004)
  - Not established in wild bird populations

# Low Pathogenic Avian Influenza

## Relative Occurrence in Wild Birds

- Frequent: Waterfowl, Shorebirds
- Common: Gulls & Terns
- Occasional: Marine birds, Ratites (ostrich, emu, rhea)
- Rare: Cranes, Songbirds, Raptors

# Current Bird Flu Outbreak HPAI H5N1

- 2003-2006 (ongoing)
- H5N1, A HPAI virus
- Asia, Europe, Africa
- By far the most severe outbreak of avian influenza in domestic birds ever recognized
- **NOT IN NORTH AMERICA TO DATE**



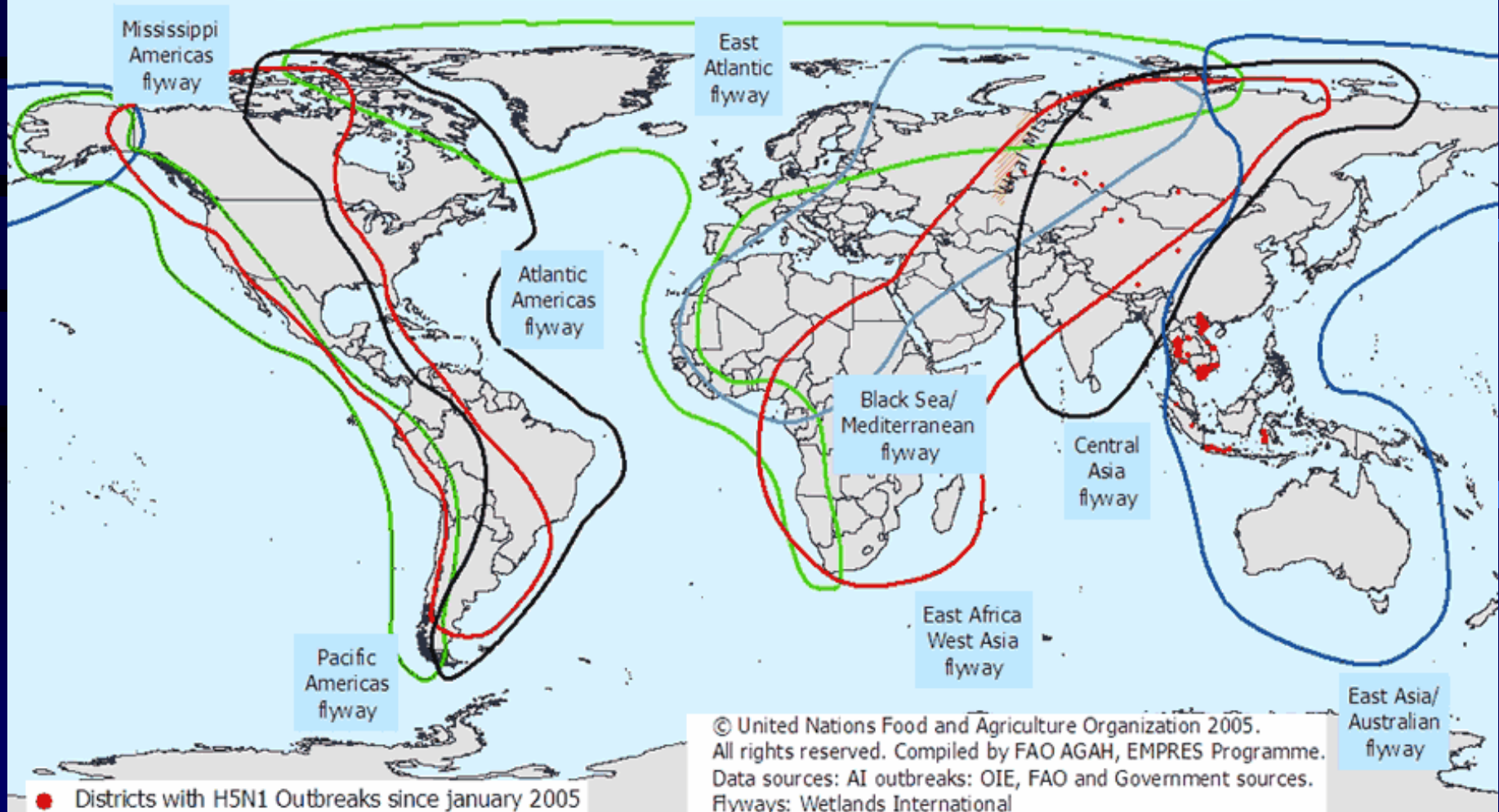
# Animals affected by HPAI H5N1 in addition to birds

- Felids (domestic cat, leopard, tiger)
- Primates (macaques)
- Mustelids (marten, ferret)
- Rabbits, rodents
- Pigs

# HPAI H5N1 – Migratory Bird Flyways?

## H5N1 outbreaks in 2005 and major flyways of migratory birds

Situation on 30 August 2005



# Early Detection System for HPAI H5N1 Wild Migratory Bird Flyways (USDA, USFWS)

- Investigation of morbidity & mortality events
- Testing of migrating birds
- Testing of hunter-killed birds
- Sentinel poultry flocks
- Sampling of water & feces in waterfowl habitat.

# Public Health, Birds, & Bird Flu

- Risk to People?
- Disinfection
- Food Safety
- Pets
- Birds in the Back Yard
- Zoos

# Public Health & Bird Flu

- Exposure to infected poultry and their feces or dust contaminated with feces has been associated with human infection; however this is a rare occurrence
- CDC: Unusual for people to get influenza virus infections directly from animals

# Public Health & Bird Flu

- Transmitted bird-bird via oral-fecal route and through contact with respiratory secretions.
- Shed in bird respiratory secretions & feces
- CDC: Unusual for people to get influenza virus infections directly from animals

# Public Health & Bird Flu - Disinfection

- Virus can survive, at cool temperatures, in contaminated manure for at least three months
- In water, the virus can survive for up to four days at 72° F and more than 30 days at 32° F
- CDC: Unusual for people to get influenza virus infections directly from animals

# Public Health & Bird Flu - Disinfection

- Many detergents
- Formaldehyde
- Bleach
- Ammonia
- Acids
- Heating to 90°F for 3 hours, 100°F for 30 min
- Drying
- Iodine containing solutions



# Public Health & Bird Flu - Food Safety

- Avian influenza viruses are destroyed by adequate heat, as are other food borne pathogens. Follow proper food preparation and handling practices:
  - Cook all poultry and poultry products (including eggs) thoroughly before eating. (180 degrees Fahrenheit)
  - Raw poultry always should be handled hygienically
  - All utensils and surfaces (including hands) that come in contact with raw poultry should be cleaned carefully with water and soap immediately afterwards

# Public Health & Bird Flu – Pets

- Rare reports of transmission from birds to domestic cats in affected areas from cats eating infected uncooked birds
- Prevention in cats:
  - Do not let cats roam unattended outdoors
  - Keep cats away from birds
  - Avoid raw-poultry diets

# Public Health & Bird Flu – Birds in the Back Yard

- Feeding Wild Birds
  - Avian Influenza rare in song birds
  - Keep feeders & baths clean
  - Wear rubber or disposable latex gloves while cleaning bird feeders & bird baths
    - Salmonella, etc.

# Public Health & Bird Flu – Birds in the Back Yard

- Finding a Dead Bird
  - Testing of backyard songbirds is not a priority at present
  - What do I do if I see or find sick or dead waterfowl or water birds (cormorants, shore birds, gulls)?
    - If you see or find dead waterfowl or water birds report your findings to the Kentucky Department Fish and Wildlife Resources at 1-800-858-1549 ext. 352
    - Waterfowl deaths not uncommon (e.g. Botulism)

# Public Health & Bird Flu – Birds in the Back Yard

- Finding a Dead Bird
  - Use gloves or plastic bags to avoid skin contact
  - Contain in a double plastic bag
  - Dispose of with solid waste
  - Wash hands after disposal
- FYI: Large carcasses (dogs, cats, etc.)
  - Handle as above
  - Contact Metro-call for curbside pickup

# Bird Flu & Zoos

- A safe place to visit.
- American Zoo & Aquarium Association
  - Avian Influenza: Guidelines for prevention and control, November 2005
  - HPAI Emergency guidelines, January 2006
  - Vaccine trial - Pending USDA APHIS approval

# Public Health & Bird Flu: Resources

- CDC
  - <http://www.cdc.gov/flu/avian/gen-info/qa.htm>
- KY Dept of Agriculture
  - <http://www.kyagr.com/avianinfluenzafacts.htm>
- National Wildlife Health Lab
  - [http://www.nwhc.usgs.gov/disease\\_information/avian\\_influenza/index.jsp](http://www.nwhc.usgs.gov/disease_information/avian_influenza/index.jsp)
- KDFWR
  - <http://www.kdfwr.state.ky.us/avianfluinfo.asp>